X.25 is a standard suite of protocols used for packet switching across computer networks. The **X.25** protocol works at the physical, data link, and network layer (Layers 1 to 3) of the OSI model.

Each **X.25** packets contains up to 128 bytes of data. The **X.25** network handles packet assembly at the source device, delivery, and then dis-assembly at the destination.

X.25 packet delivery technology includes not only switching and network-layer routing, but also error checking and re-transmission logic should delivery failures occur.

X.25 was originally designed more than 25 years ago to carry voice over analog telephone lines. Typical applications of X.25 today include automatic teller machine networks and credit card verification networks.

X.25 also supports a variety of mainframe terminal/server applications.

An **X.25 network** consists of a network of interconnected nodes to which user equipment can connect. The user end of the network is known as **Data Terminal Equipment** (**DTE**) and the carrier's equipment is **Data Circuit-terminating Equipment**(**DCE**). X.25 routes packets across the network from DTE to DTE.
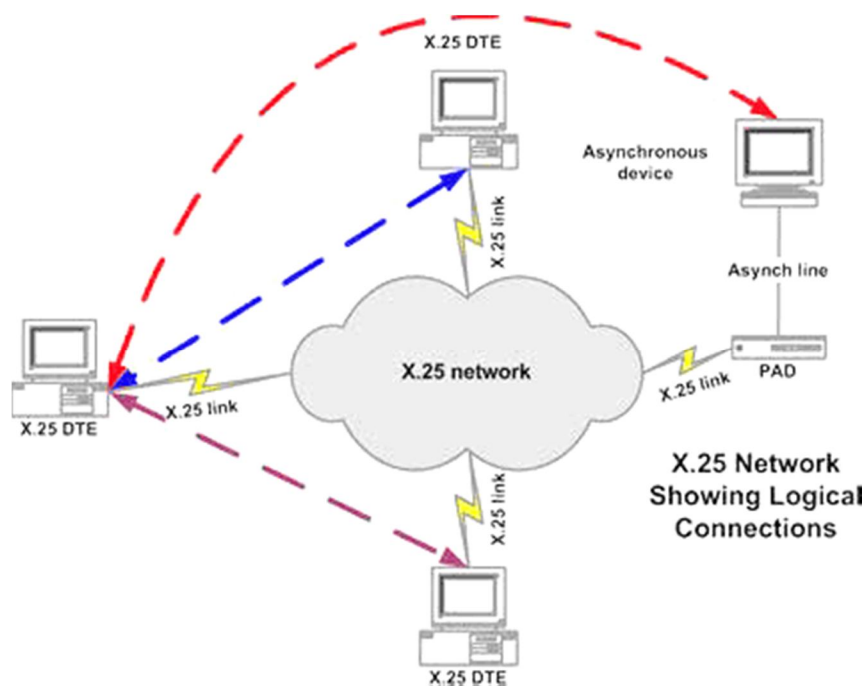
Uses of X.25

X.25 is a mechanism for transferring transparent data. One of the largest uses of X.25 is the transfer of asynchronous data streams such as those produced by simple terminals like credit card readers.

These devices connect to a Packet Assembler/Disassembler (**PAD**) that organizes the asynchronous data streams into X.25 packets for transmission across the network. PAD design is based on CCITT standards **X.28, X.29 and X.3.**

X.28 is a standard protocol that applicable between the terminal and the PAD.

X.29 is a protocol that exists between the PAD and the network.

Whenever function is performed with PAD and terminal, **X.3** protocol is worked.

Together these three protocols are called **XXX.**

X.25 remains important in Point-of-Sale credit card and debit card authorization.

Characteristics of X.25

Maximum packet sizes vary from 64 bytes to 4096 bytes, with 128 bytes being a default on most networks. X.25 is optimized for what today would be considered quite **low speed lines**: 100kbps and below. X.25 has been the basis of the development of other packet switched protocols like TCP/IP and ATM. These protocols also have the ability to handle one-to-many connections and the ability to match DTE's having different line speeds, both characteristics of X.25.

X.25 has been around since the mid 1970's and so is pretty well **debugged and stable**. There are no data errors on modern X.25 networks.

The major technical drawback of X.25 today is the **inherent delay** caused by the store-and-forward mechanism, which in turn restricts the useful data transmission rate.